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## **TACOM LCMC INDUSTRIAL BASE NETWORKING SUMMIT**

**Magid Athnasios, Director, Engineering Business Group**  
**25 MAR, 2010**

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**Provide an introduction to the U.S. Army Tank  
Automotive Research, Development and  
Engineering Center's (TARDEC's) programs,  
capabilities and facilities as related to LCMC  
Industrial Base Support**



- **TARDEC Mission**
- **TARDEC Organization**
- **TARDEC Industrial Base Support**
  - **Industrial Base Engineering Support**
  - **Sustainment Engineering**
  - **Manufacturing Technology**
  - **Depot/Arsenal Support**
  - **Materials Environmental & Corrosion**
  - **Vehicle Development & Integration**
- **Summary/Questions**

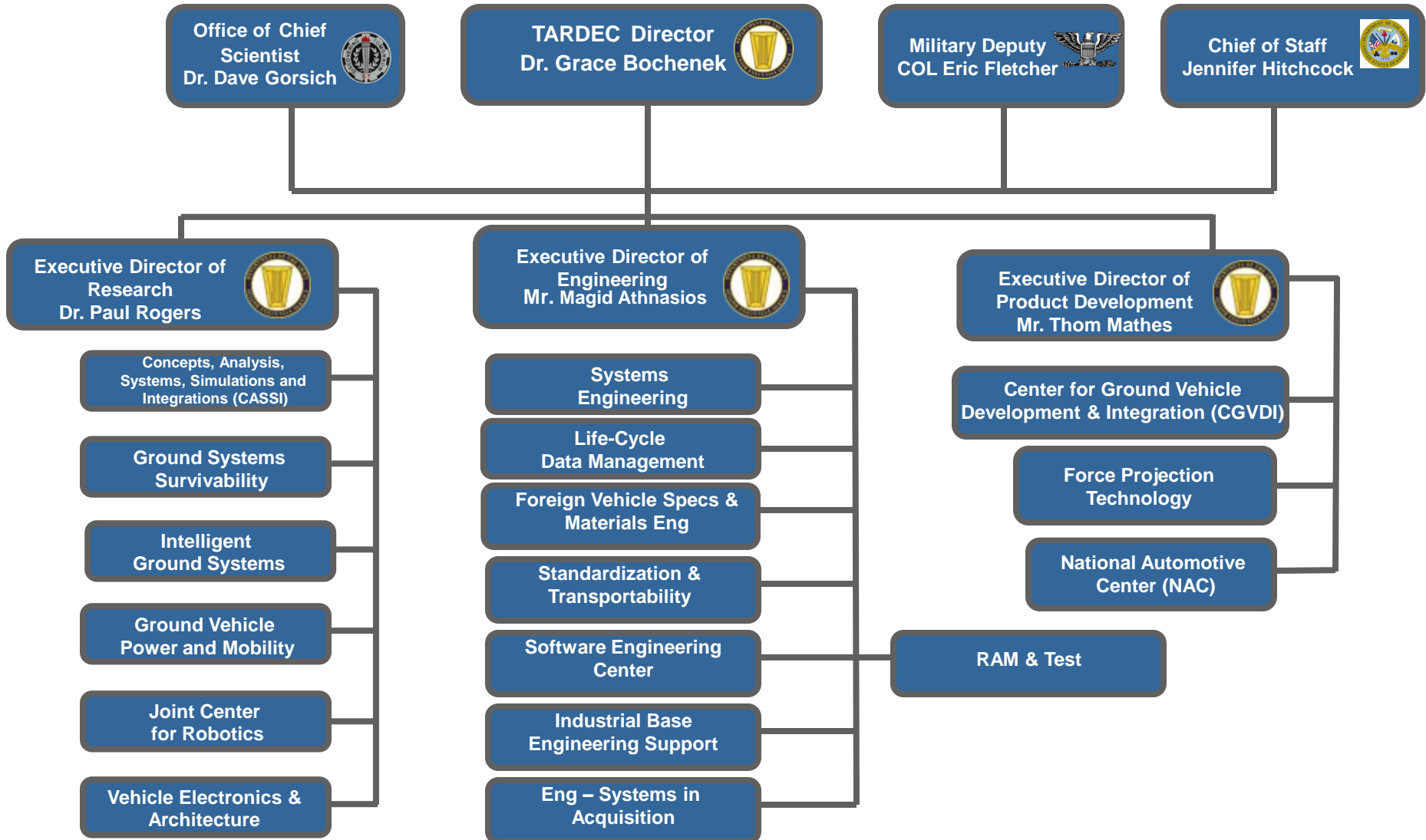


- Provides full life-cycle engineering support and is provider-of-first-choice for all DOD ground combat and combat support vehicle systems.
- Develops and integrates the right technology solutions to improve Current Force effectiveness and provide superior capabilities for the Future Force.

*Ground Systems Integrator  
for the Department of Defense*



Responsible for Research, Development and Engineering Support to 2,800 Army systems and many of the Army's and DOD's Top Joint Warfighter Development Programs



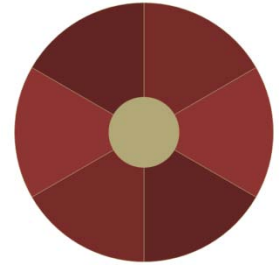




## What is TARDEC's Industrial Base Mission?

### Industrial Base Support:

- LCMC Industrial Base Integration Team (IBIT) Participation
- TARDEC Industrial Base Engineering Team (IBET)
- Advanced Manufacturing Technology (AMT)
- Diminishing Manufacturing Sources and Material Shortages (DMSMS)
- Depot Liaison Rotation Program
- Prototype Integration Facilities (PIF)

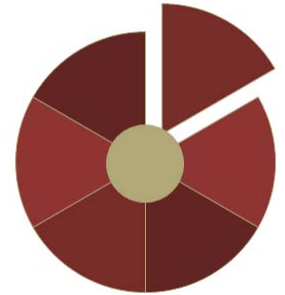


### Sustainment Engineering Support:

- Value Engineering (VE)
- Operating & Support Cost Reduction (OSCR)
- Quality Deficiency Report (QDR)
- Integrated Collaboration & Analysis Process (ICAP)
- Industrial Base Engineering Team (IBET) (For sustainment issues)
- DLA Engineering Support (DLA 339)
- Depot Liaison Rotation Program (For platform issues)
- Diminishing Manufacturing Sources and Material Shortages (DMSMS) (For platform issues)
- Equipment/User Feedback (OSMIS, SDC, AMSAA, C-REPS, QDRs)



## Industrial Base Engineering Team (IBET)

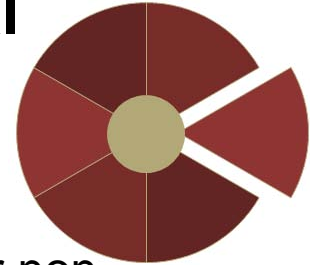


### TARDEC Engineers:

- Support LCMC Industrial Base requirements
- Provide investigation
- Leverage experience, capability & expertise
- Provide quick response to problems
- Support proactive management
- Improve LCMC communication
- Apply disciplined processes
- Implement LCMC wide solutions (standardization)

**TARDEC POC: IBET Team Leader, Mr. Tony Mitek**  
**(586) 282-6172, [tony.mitek@us.army.mil](mailto:tony.mitek@us.army.mil)**

## Diminishing Manufacturing Sources & Material Shortages (DMSMS)

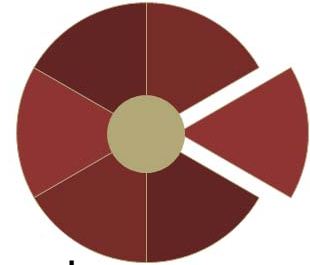


### TARDEC Engineers:

- Monitor, identify, and resolve industrial manufacturing risk or non-support conditions
- Address Occupational Safety Health Administration (OSHA), Environmental Protection Agency (EPA), Society Of Engineers (SAE) initiatives
- Eliminate or minimize impact and / or reduce operating and support costs for equipment supported by the TACOM LCMC
- Provide TACOM LCMC Managers maximum visibility of support options
- Identify current suppliers as well as those who have not historically conducted business with the government
- Manage the DMSMS Contract to access commercial industry

**TARDEC POCs: DMSMS Action Officer, Mr. Brian Suma**  
**(586) 282-6407, [brian.suma@us.army.mil](mailto:brian.suma@us.army.mil)**

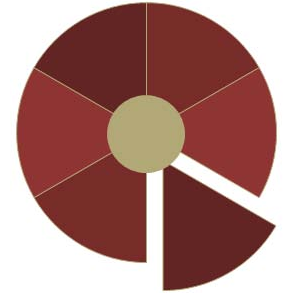
### Diminishing Manufacturing Sources and Material Shortages



- Automation Alley, Michigan's largest technology business association, is currently on contract with TARDEC to provide industrial base support for the TACOM LCMC Diminishing Manufacturing Sources and Material Shortages (DMSMS) program
- The contract with Automation Alley has created a capability to establish commercial industrial base visibility and communicate TACOM LCMC requirements with companies across the United States
- How can companies become involved?
  - Companies can register by visiting [www.dmsms-tardec-army.com](http://www.dmsms-tardec-army.com) or by calling Automation Alley (800) 427-5100 for more details
  - Your information will be logged in the DMSMS database and you will receive communications regarding upcoming initiatives

**TARDEC POC: DMSMS Contract Officer's Representative, Mr. Stan Michener**  
**(586) 282-8728, [stan.michener@us.army.mil](mailto:stan.michener@us.army.mil)**

## Advanced Manufacturing Technology Team (AMTT)

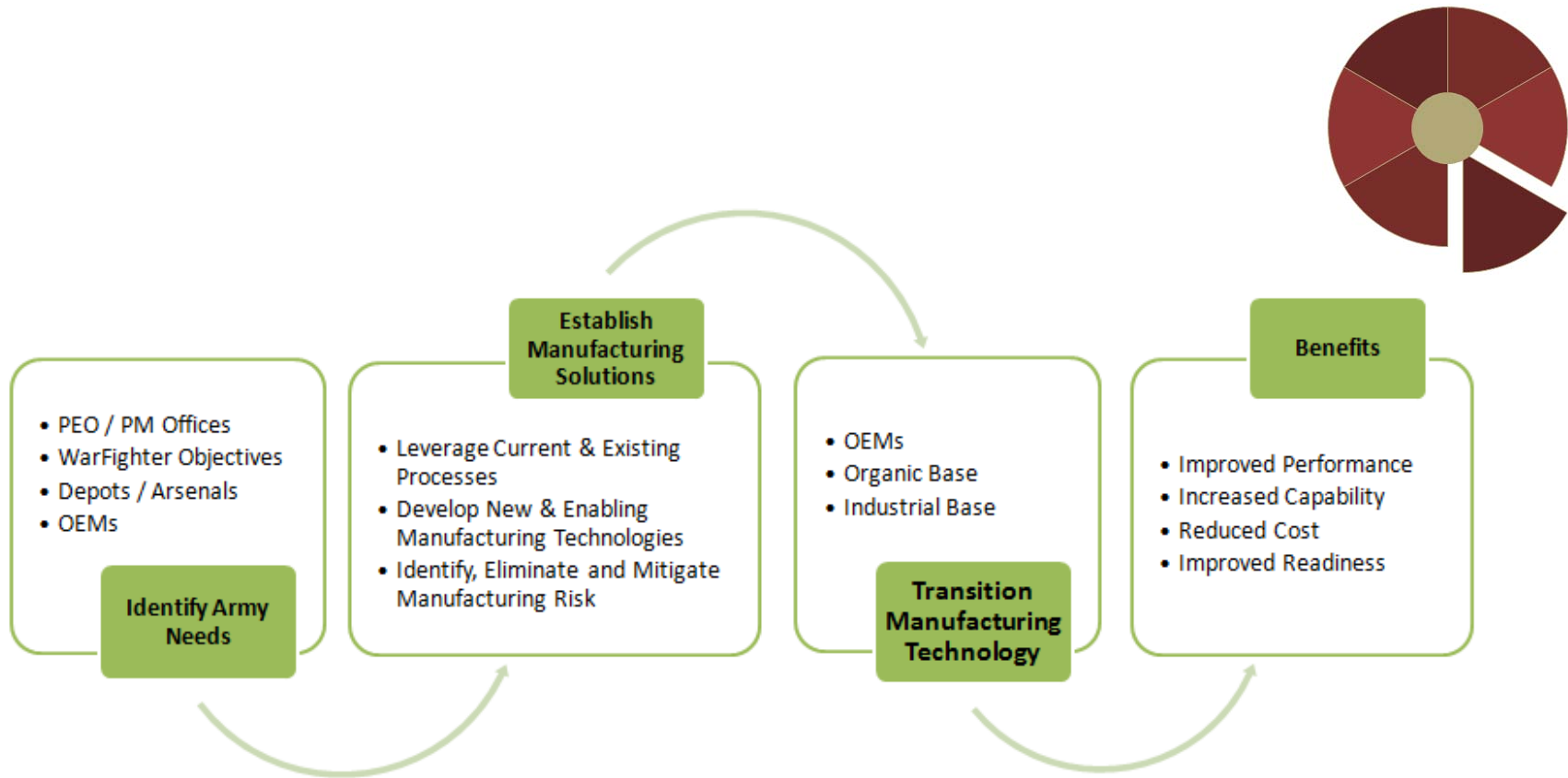


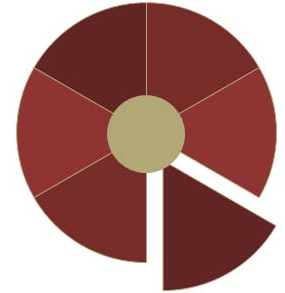
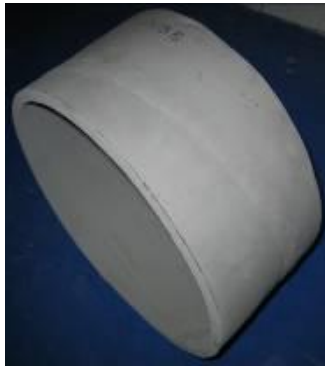
### TARDEC Engineers:

- Are involved early enough to address manufacturing issues
- Identify manufacturing maturity levels
- Conduct manufacturing Assessments for Risk Reduction
- Provide opportunities for process improvement
- Enable Manufacturing Technology Transfer
- Support development of manufacturing capability

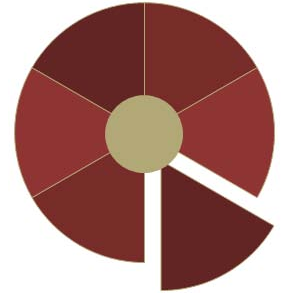
**TARDEC POC: AMT Team Leader, Mr. Tom Altobelli**  
**(586) 282-8708, [tom.altobelli@us.army.mil](mailto:tom.altobelli@us.army.mil)**







- Extrudes net shapes or a formable mix, such as Metal Matrix Composites (MMC) material
- The integrated automated manufacturing process, relies on minimal labor and produces superior quality and quantity over current manufacturing mixing processes
- Offers a 45% weight reduction compared to that of a standard brake drum produced from ductile iron
- Implementation of this technology will serve to reduce weight and fuel consumption while increasing payload, crew protection and reliability

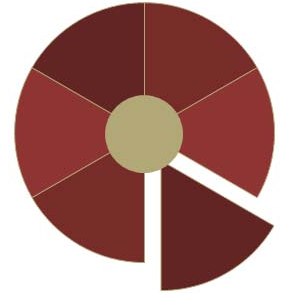


### Provides Manufacturing Solutions At Point Of Need To Ensure Soldier Readiness

- A self-contained, self-sustaining, mobile mini-manufacturing system that can efficiently fabricate standard and unique parts at the point of need
- Lathe modules deployed at 4 strategic SWA locations
- Concepts & prototype units developed by TARDEC
- Transitioned to PM SKOT in 2005
- Fully transitioned (IBO) in 2007

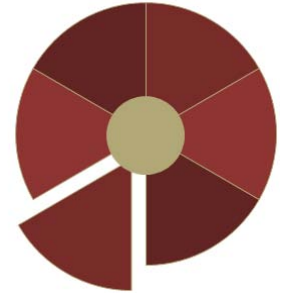


- Integrated scanning technology with reverse engineering and quality assurance operations at the Anniston Army Depot in July 2009
- Parts are scanned into a cloud of points that are then converted into a CAD file
- The scanning and manufacturing process integration provides new capabilities that advanced manufacturing systems might otherwise overlook such as:
  - broken parts that can be scanned and digitally repaired or “stitched” together
  - more complex surfaces (i.e. turbine blades) that can be fully modeled and verified
  - part repair that can be improved by identifying where additional material should be added





## Depots/Arsenals Liaison Program

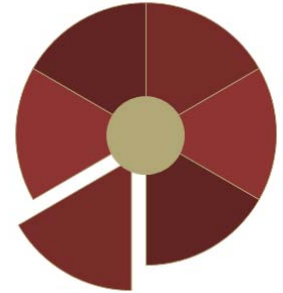


### TARDEC Engineers:

- Participate in Developmental Assignments
- Have 6 to 24 months experience
- Rotate on-site assignments of 60 to 90 Days
- Are exposed to programs & issue experience
- Attend bi-weekly VTC with LCMC (PEO/PM/TARDEC/ILSC)
- Attend monthly WPU with LCMC & AMC
- Link experience and expertise between TACOM LCMC and the depots and arsenals
- Provide engineering support to assist with problem investigation, resolution and/or implementation
- Create synergies and standardization opportunities across the TACOM LCMC organizations and platforms
- Support individual and career development

## Implemented to date:

- ANAD, JAN 2009
- RRAD, JAN 2010

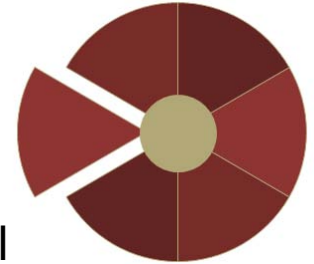


## Example Issues:

- Hexavalent Chromium/Cadmium (RRAD)
- Common Adhesive (ANAD)
- AVL B Pressure Plate (ANAD)
- Paladin Corrosion (ANAD)
- Abrams Transmission Line (ANAD)

**TARDEC POC: Depot Liaison Action Officer, Ms. Adrennia Hughley**  
**(586) 282-8450, [adrennia.hughley@us.army.mil](mailto:adrennia.hughley@us.army.mil)**

## Materials Environmental & Corrosion



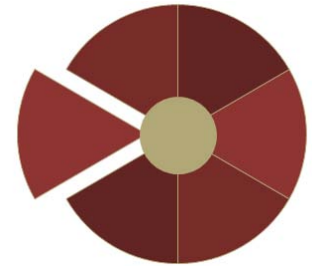
### TARDEC Engineers:

- Provide Corrosion Prevention, Materials, Environmental and Engineering support to TACOM/LCMC
  - Provide corrosion prevention
  - Resolve environmental issues
  - Provide Programmatic Environmental, Safety, and Health Evaluation (PESHE), and eliminating hazardous materials
  - Obtain EPA national security exemptions
  - Find alternative for hazardous materials
  - Research new products
  - Review scope of works
  - Provide product design alternatives

**TARDEC POC: CPC Team Leader, Mr. Ali Baziari**

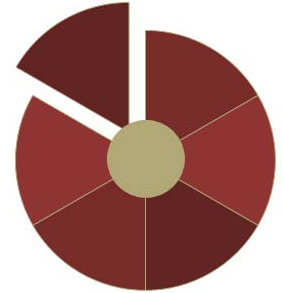
***(586) 282-8818, [ali.baziari@us.army.mil](mailto:ali.baziari@us.army.mil)***

- Corrosion prevention training for design engineers
  - New corrosion resistant materials
  - New design considerations
  - New finishing techniques
- Controlled humidity protection
  - Fully humidity controlled building
  - Humidity controlled system for individual pieces of equipment
  - Environmentally sealed bags
- New paint and application technologies
  - Water-based CARC and primer
  - Cartridge application technologies
- Repair initial stages of corrosion
  - Category II repairs (surface preparation/prime/paint)
- Application of corrosion preventive compounds
  - Reduce the progression of corrosion





## Center for Ground Vehicle Development & Integration (CGVDI)



### TARDEC Engineers:

- Are a one stop center for design and development
- Develop system and sub-systems
- Fabricate prototypes
- Provide development integration
- Identify and apply advanced technology

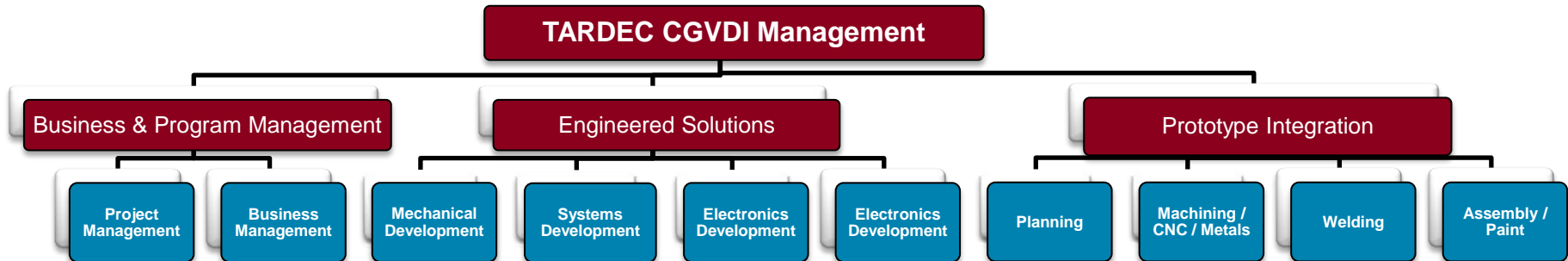
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**Mr. Luis Hinojosa**

**(586) 282-8721, [luis.hinojosa@us.army.mil](mailto:luis.hinojosa@us.army.mil)**

## Bridging the gap between R&D, Production and Fielding through Rapid Prototyping



Quick Turnaround Environment - Highly Flexible

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### **HMMWV Egress Assistance Trainer (HEAT)**

Reduce fatalities in rollover events by safely training soldiers on the proper procedure to exit a rolled-over HMMWV.



### **Electronic Tip-down Antenna System (ETAS)**

Allows Soldiers to simultaneously maneuver numerous antennas into a retracted or normal position to access areas with lower clearance levels



### **Battery Powered Motorized Traversing Unit (BPMTU)**

Powered traversing capability for HMMWV turrets, allowing Soldier to use joystick to easily rotate the gunner and to fight from behind armor and ballistic glass



### **Construction Equipment Add-on-Armor**

**IHMEE      HYEX      ATLAS      ATEC**

Armor kits for various construction vehicle to protect engineering crews who are working in potentially dangerous areas



### **HMMWV Armor Survivability Kits (ASK)**

Provides a field installable, expedient armor solution for HMMWV side ballistic threats





### **MRAP Expedient Armor Program (MEAP)**

Provide protection at the medium threat level (minimum) for MRAP I vehicles



### **MRAP Gunner Restraint System (GRS)**

Secure MRAP Gunners in turret to avoid ejection from vehicle



### **MRAP Egress Trainer (MET)**

Train Soldiers on how to safely exit MRAP in the event of a rollover



### **Overhead Wire Mitigation (OWM)**

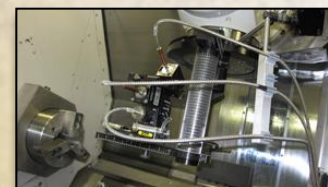
Allows MRAP vehicles to avoid pulling down low hanging lines, and to prevent contact with high-voltage lines



### **Self Protective Adaptive Roller Kit (SPARK)**

Provides additional stand-off to the vehicle and crew against pressure activated or Victim Operated Improvised Explosive Devices







**For more information please visit us at:**

<http://tardec.army.mil>

<https://tardec.groundvehiclegateway.com/>

